



Migration and Conservation in the Lake Albert Ecosystem

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Acronyms

ACODE	Advocates Coalition for Development and Environment
BMU	Beach Management Unit
CA	Conservation Area
CAS	Catch Assessment Survey
CBO	Community-Based Organization
CDC	Conservation Development Centre
CFR	Central Forest Reserve
CIA	Central Intelligence Agency
CSC	Conflict-Sensitive Conservation
DFR	Department of Fisheries Resources
DRC	Democratic Republic of the Congo
FQAMP	Fish Quality Assurance and Marketing Project
HWC	Human-Wildlife Conflict
IISD	International Institute for Sustainable Development
IMF	International Monetary Fund
IUCN	International Union for Conservation of Nature
MEMD	Ministry of Energy and Mineral Development
MFCA	Murchison Falls Conservation Area
NaFIRRI	National Fisheries Resources Research Institute
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
NP	National Park
NR	Natural Resource
NRM	Natural Resource Management
PA	Protected Area
SEA	Strategic Environmental Assessment
TEK	Traditional Ecological Knowledge
ULA	Uganda Land Alliance
UWA	Uganda Wildlife Authority
UWS	Uganda Wildlife Society
WCS	Wildlife Conservation Society

1.0 Introduction

Migration has been used for centuries as a means of adapting to and coping with change, both in Uganda and in the Great Lakes region more broadly. It is driven by a number of oftentimes mutually reinforcing factors, including: livelihood strategies, such as mobile pastoralism; the pursuit of economic opportunities; population pressures; environmental and climate stresses; development policies; and political persecution and conflict. The livelihood and natural resource management strategies that are adopted throughout the migration process can have a range of impacts on ecosystems and the livelihoods they support. For example, habitat and species loss can undermine ecotourism opportunities, pollution can increase health risks, and land degradation and deforestation can undermine agricultural productivity. As traditional migration systems break down and the push-pull factors increase both in scale and complexity, the migration story in many countries is becoming increasingly complicated. For the Great Lakes region—a region already experiencing myriad forms of natural resource and climate stress—the growing socio-environmental impacts of migration could incubate or reinforce existing social tensions and institutional failures, further threatening the critical ecosystems and the livelihoods they support.

Policy-makers and practitioners are not fully aware of these threats, nor are they fully prepared to manage them through appropriate interventions. The Migration and Conservation in the Great Lakes Region project attempts to address this gap by: (a) developing a methodology to better understand the drivers and impacts of migration on critical natural resources, ecosystems and livelihoods in the Great Lakes region; (b) identifying effective responses for policy-makers and practitioners working on these issues; and (c) catalyzing further research and policy engagement on the topic in the region. To achieve these objectives, the project is carrying out research at three case study sites: the Bale Mountains ecosystem in southern Ethiopia, the Misotshi-Kabobo ecosystem in the eastern Democratic Republic of Congo (DRC), and the Lake Albert ecosystem in Buliisa District in northwest Uganda. The

research was carried out through a mix of desk research, site visits and on-the-ground surveys. This report will present an assessment of the migration context in the Lake Albert ecosystem, as well as suggested response strategies. The International Institute for Sustainable Development, the Conservation Development Centre and the Wildlife Conservation Society conducted the research with the generous support of the MacArthur Foundation.

Migration is playing a significant role in the deterioration of the Lake Albert ecosystem in Buliisa District. Migrants, mainly coming from neighbouring provinces in the DRC, are pulled to the region by the economic opportunities presented by the fishery, and are willing to work for wages lower than those demanded by the local population. Expanding access to new markets, made possible by infrastructure investments linked to oil and gas exploration, have similarly increased demand for fish from buyers as far away as Kampala. These two forces—increasing demand for fish and increasing supply of labour—have resulted in a fishery dangerously close to collapse: larger species of fish are increasingly rare, while the fish caught are of increasingly smaller size across species. While the implications of this for local livelihoods are significant, current political incentives are aligned with maintaining the status quo. The fishery will continue to deteriorate unless effective and sustainable resource management systems are put in place and migration impacts are addressed.

The next section of the report explores the conservation context, including Lake Albert's key species and the fishery's management structures and institutions. Section 3 outlines key livelihoods and natural resource use in the case study area. Section 4 presents the migration context, describing the extent of the migration into Buliisa District, the recent history of migration to the region, and the profile of most migrants coming to the area. Section 5 looks at the ecological impacts of this migration on the Lake Albert ecosystem. Finally, Section 6 presents the project team's main conclusions and recommendations, including potential key intervention strategies.

2.0 The Lake Albert Ecosystem in Buliisa

Buliisa District is situated in western Uganda on the shores of Lake Albert (see Figure 1). It covers an area of 2,498 km², comprises six subcounties, and is named after its main urban centre, Buliisa town. In Lake Albert, it harbours an ecosystem of critical importance to local livelihoods and one of the key biodiversity areas of the Upper Nile Basin (MEMD, 2013). The past 50 years have seen an ongoing migration of people into

Buliisa District, most notably from the neighbouring DRC. While no official statistics are kept on the local population's origin or ethnicity, it is believed that up to half of the district's current inhabitants are the descendants of people who migrated into the area since the 1960s. This migration, and the resource exploitation that has come with it, have had a significant impact on the lake's ecosystem.

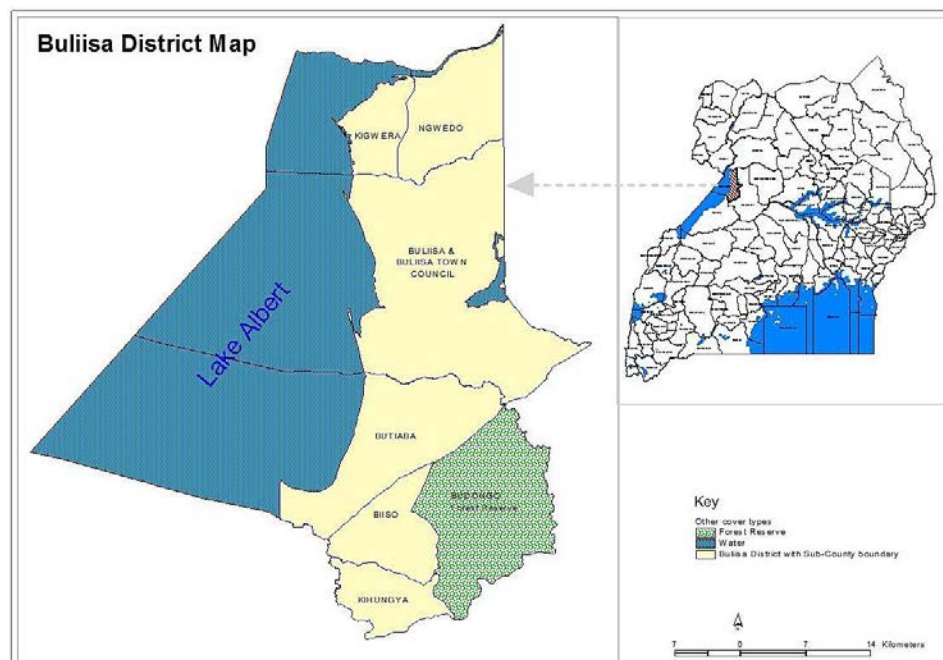


FIGURE 1. BULIISA DISTRICT SUBCOUNTIES

Source: Obuga (2013).

Uganda is categorized as a country of Low Human Development, according to the most recent Human Development Report of the United Nations Development Programme (UNDP): of the 187 countries included on the report's Index, Uganda is ranked 164. A third of the population is categorized as living in severe poverty, and 38 percent of its citizens fall below the income poverty line of less than USD 1.25 per day. Life expectancy at birth is low but improving, and at 59.2 years is now higher than the average for sub-Saharan Africa. The Ugandan population is young: the median age is just 15.9 years. Students on average attend school for 5.4 years, though there is some disparity along gender lines in the expected number of years spent at school, with this figure slightly lower for female students. Over 83 per cent of the population are based in rural areas, though the country's cities are growing in population at a faster pace than rural parts of the country (UNDP, 2014).

In 2010 Buliisa District was estimated to have a total of 104,934 inhabitants (Bainomugisha, Asiku, & Kajura, 2011). Having nearly doubled in the past two decades,

the district's population continues to rise steadily, and more than half of the district's inhabitants are under 20 years old. According to the Uganda Bureau of Statistics (n.d.), 90 per cent of the population in Buliisa District live below the poverty line, making it one of the poorest districts in Uganda. Malnutrition is prevalent, with nearly 27 per cent of children stunted and over 18 per cent underweight. The district is characterized by a highly rural population that is dependent on artisanal fishing and rain-fed agriculture. Buliisa is politically and economically marginalized, and poor infrastructure has exacerbated poverty and resulted in limited employment opportunities.

The context is not expected to change rapidly despite the recent discoveries of oil and gas, as generally low education levels in the district mean that few local residents possess the qualifications required for skilled employment in the industry. Literacy rates in Buliisa and surrounding districts are low, and it is estimated that over a third of the population over the age of six, primarily women, have never attended school. School

enrolment has increased following the recent passing of the Universal Primary Education Policy, but the dropout rate remains high, again with girls dominating.¹

The Conservation Context: The Lake Albert ecosystem in Buliisa District

Buliisa District is rich in biodiversity and natural resources. Lake Albert, which takes up the western portion of the district, supports a rich aquatic ecosystem, while the eastern section of the district includes portions of Murchison Falls Conservation Area (MFCA) and the expansive Budongo Forest. The Victoria Nile, which borders the district to the north and dissects the MFCA, is also rich in biodiversity.

Shared between Uganda (54 per cent) and the Democratic Republic of the Congo (46 per cent), Lake Albert lies between two parallel escarpments in the Rift Valley. It is Africa's seventh-largest lake and the northernmost of the chain of lakes in the Albertine Rift, the western branch of the East African Rift. It is about 160 kilometres (km) long and 30 km wide. With a surface elevation of 619 metres above sea level, Butiaba landing site in Buliisa District (one of the main study areas of this case study) is the lowest point in Uganda. Lake Albert is part of the complex Upper Nile System, its main sources being the Victoria Nile, originating in Lake Victoria to the southeast, and the Semliki River, which issues from Lake Edward to the southwest.

Lake Albert contributes significantly to Uganda's fish production. However, like other large inland water bodies in East Africa, it is heavily overfished. The lake and its contiguous waters host at least 55 species of fish, at least 10 of which are endemic to Lake Albert. Cichlids are abundant, mostly appearing in sheltered, inshore areas, particularly lagoons. Nile perch, one of the largest freshwater fishes, and the endemic *neobola bredoi*, one of the smallest commercially exploited fish species, are also both native here.¹ Because of overfishing, the endemic Nile perch has been placed on the IUCN Red List as "endangered", highlighting the need for special conservation efforts. Wetland flora is vital to the structure and functioning of floodplain and the wetland ecosystems associated with Lake Albert. These wetlands are believed to offer the principal food-web fabric that supports most of the major fisheries of the lake (MEMD, 2013).

The Lake Albert fisheries can be divided into three zones:

- The lower floodplains and deltas of major rivers such as the Victoria Nile and the shallow in-shore lake fringe less than 7 m deep. This zone contains biodiversity hot spots and is a recognized breeding and nursery ground for almost all fish species in Lake Albert. It is also vital fishing area, attracting a large number of fish landing sites, particularly in Buliisa District.
- The intermediate depth zone (7 m to 20 m) includes the steeper shoreline sections with rocky underwater cliffs or, in the vicinity of the spits, steep sand slopes.
- The deep open water zone (>20 m) covers the largest portion of the lake but it is perhaps the least known in terms of its ecology and species. In response to increasing demand for fish, this zone is coming under intense exploitation due to more efficient (and sometimes illegal) fishing equipment and methods.

In 2013 the Ugandan Ministry for Energy and Mineral Development (MEMD), in conjunction with the National Environment Management Authority (NEMA), prepared a Strategic Environmental Assessment (SEA) of Oil and Gas Activities in the Albertine Graben.¹ The SEA provides the most up-to-date assessment of the physical and biological environment of Lake Albert and Buliisa District, but also highlights major data gaps, including:

- Lack of detailed biodiversity inventories of the floodplains and lakeshore.
- Lack of economic valuation data for floodplain wetlands around Lake Albert.
- Spatial and temporal data on hydrodynamics of Lake Albert are virtually unknown.
- Lack of recorded information on critical nursery or feeding areas for different fish species.
- Lack of seasonal studies of fish that would allow for the identification of habitat preferences and spawning grounds.
- Lack of recent fauna and flora data for the intermediate and deep zones of Lake Albert.

In addition to overfishing, oil and gas exploration, and in particular the extraction phase expected to commence in the near future (see Annex 4), could potentially be dangerous for the Lake Albert ecosystem due to a number of associated risks.

¹ "Graben" is a geological term describing a depressed block of land bordered by parallel faults. The Albertine Graben forms the northernmost part of the western arm of the East African Rift and is situated along the Ugandan-Congolese border, stretching northwards to Uganda's border with South Sudan.

Partially found within Buliisa District, Murchison Falls National Park (MFNP) is Uganda's largest national park. MFNP combines with contiguous Bugungu and Karuma Wildlife Reserves to form Murchison Falls Conservation Area (MFCA). The MFCA extends inland from the shores of Lake Albert around the Victoria Nile, which bisects the park from east to west. It encompasses a mosaic of habitats, including woodlands, wetlands, savannah and tropical forest, and is home to 76 mammal species and over 450 different bird species. While still recovering from large-scale poaching during the 1970s and 1980s, it is home to four of the “big five” game species: buffalo, elephants, lions and leopards. Other large mammals include hippopotamus, giraffe, warthog, Uganda kob and harte-beest. The Nile corridor of the park also has a large collection of water birds such as shoebills and storks, as well as a large concentration of Nile crocodiles.

Petroleum deposits have been found within MFNP, particularly in the area that has the highest mammal biodiversity, which also includes the Ramsar site on the delta area of the Nile, a major destination and resting place for migratory birds. These sensitive areas around the River Nile, the surrounding wetlands and in particular the spit on Lake Albert are likely to be impacted by oil and gas development in the coming years once extraction begins.

Budongo Forest Reserve, located in the southeast corner of Buliisa District, is a moist, semi-deciduous rain forest that is the largest mahogany forest in East Africa, as well as habitat for Uganda's largest chimpanzee population. The forest is rich in biodiversity, with 24 species of small mammals (nine being primates), 465 species of trees and shrubs, and 359 species of birds. The ecological balance of the forest is threatened by illegal logging and human encroachment, which could lead to the loss of not only timber but also wildlife, traditional medicines and tourism potential. Poaching also takes place and, while chimpanzees are not targeted by local hunters, many suffer from snare injuries as a result of being caught in traps set by neighbouring communities to catch game meat such as duikers and forest pigs.

Over the past five decades, densely forested areas on unprotected land surrounding Budongo Forest have been gradually cleared as a result of increasing pressures for agricultural expansion. By the early 1980s, most of the land above the escarpment in Buliisa District had been converted to agriculture. Today, no privately or community-owned forests remain in the district. The forest is a key water catchment for the area, and as such

it plays a key role in maintaining critical ecosystem functions. Loss or severe reduction in this forest would severely impact the water retention potential of the entire catchment area, eventually lowering the water table and affecting local communities as well as wildlife and vegetation across Buliisa District.

Lake and Fishery Management

The structures and institutions governing the Lake Albert fishery in Buliisa District are key to addressing the impacts of migration on the ecosystem. The Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) is responsible for the formulation, review and implementation of national policies, plans, strategies and regulations pertaining to fisheries. More specifically, fisheries in Uganda are under the Department of Fisheries Resources (DFR), which has a mandate to promote, support and guide the fisheries sector, while also setting and enforcing the relevant standards and regulations. At the local level, DFR strategies and regulations are implemented in partnership with local co-management institutions. However, given the limited budget and manpower available at the district level, as well as the inefficacy of the local co-management mechanisms, the implementation of DFR's mandate in Buliisa District remains problematic.



Photo credit: Floris D. Uutze

Fisheries co-management was first introduced to Uganda in the late 1990s. Beach Management Units (BMUs) were established to act as community fisheries management institutions registered with the DFR. BMUs in Uganda are expected to enforce fisheries regulations, develop fisheries management plans and collect data on fish catches. BMUs are charged with managing fishery resources in partnership with local governments, and today all fishers operating on Ugandan lakes must be registered with a BMU. BMU members report illegal fishing activities, provide data on fish catches, and participate in the identification of fish breeding areas. A BMU must be established at every gazetted landing site across the country, and all BMUs are required to have an assembly of all registered members and an elected committee. The committee must include representatives from four stakeholder groups: boat owners, crew, fishmongers and the “others” category, and at least three committee members must be women. The vision behind the introduction of fisheries co-management structures appears to have not yet been fully realized, as during the field research it became apparent that in Buliisa women and other marginalized groups such as migrant crew are still heavily under-represented in BMU power structures.

In practice, Buliisa District BMUs appear to be largely ineffective in fulfilling their co-management mandate, largely due to their deeply political nature and lack of transparency. BMU leaders in the district are elected every two years and serve for a maximum of two terms. Information collected during this case study’s field visits suggests that most BMU leaders turn a blind eye to the wide-spread use of illegal fishing gear and unsustainable fishing methods, perhaps because they fear that they will not be re-elected if they were to undermine their constituency’s livelihoods by enforcing fishing regulations. Moreover, campaigns for BMU leadership are reported to often cost over 2 million Ugandan shillings (UGX) (almost USD 800) per candidate, and BMU leaders are said to typically recoup these expenses through bribes once they are elected.

According to the Buliisa District Fisheries Officer, there are currently nine BMUs in the district controlling access to 16 landing sites overall, while in theory there should be one BMU for each landing site. A lack of funds and a climate of mutual distrust between government institutions and BMUs are limiting the scope of co-management, and as a result local BMUs are in practice the only management structure present on the ground at landing sites; there is virtually no input from the national or local governments and little or no

support in terms of law enforcement. Despite intentions to provide representation for all stakeholders, including traditionally marginalized categories, the leadership of BMUs is generally composed exclusively of native Bagungu men who own boats and are able to raise sufficient funds for committee election campaigns. Even in fishing communities in which, according to BMU leaders themselves, Alur migrants from the DRC make up over 80 per cent of the fishers, leadership is tightly controlled by Bagungu men. At one BMU in Buliisa District in particular, the BMU leaders openly admitted excluding the majority of BMU members from taking part in the local BMU election in order to prevent the migrant Alur majority from gaining control of the BMU Committee. While Buliisa District natives depend on migrants for low-cost labour in the fisheries sector, they also wish to control local power and resource access structures such as BMUs. Ethnicity is rarely discussed openly, but it clearly plays a major role in BMU elections.

Due to the widespread lack of transparency and the secretive nature of the BMU leadership, it was challenging to obtain information on the merits and shortcomings of fisheries co-management in the district. Despite the observed fear and reticence of stakeholders to voice their opinions, it became apparent over the course of the field visits that only a small number of elites (primarily the BMU leaders themselves) truly benefit from the current co-management system, mainly by receiving bribes in return for not reporting the widespread use of illegal fishing methods. In addition, 25 per cent of permit revenues go directly to the BMUs, but their accounting practices are not transparent. Fishers who are not involved in BMU leadership, both migrants and local residents, do not appear to benefit from BMUs in any particular way, other than that implicit permission from the BMU leadership may be needed for migrants to construct semi-permanent dwellings on government land along the lakeshore.

District Fisheries Offices articulate the central government’s policy on fisheries management at the district level. The positions, interests and needs of local BMUs are often at odds with those of the District Fisheries Office, and therefore by extension at odds with national MAAIF policy. To further complicate matters, BMU leaders are often the peers of elected members of the District Council, and together they form a politically powerful constituency in Buliisa District. As a key institutional stakeholder, the County Council is reluctant to push for the enforcement of national-level fisheries regulations.

Since all fishers are required to register with their local BMU, these co-management institutions should be equally relevant to migrant and non-migrant fishers alike. However, while BMU regulations apply to both resident and migrant communities, the actual implementation of these fisheries regulations rarely takes place in Buliisa District. In addition, research found no evidence of resource management plans being developed by local BMUs or by the District Fisheries Office, nor were stakeholders able to point to specific

regulations regarding fishing quotas or the protection of fish breeding grounds. While both migrant and native fishers are largely aware that the current exploitation of Lake Albert fisheries is unsustainable, the lack of viable economic alternatives and the increasing cost of living leaves them with little option but to further intensify the fishing effort. At the same time, there are currently no education or awareness-raising campaigns under way on sustainable fisheries management in the district.



Photo credit: Floris D'Udine



Photo credit: Floris D'Udine

3.0 KEY LIVELIHOODS AND NATURAL RESOURCE USE

Along the shores of Lake Albert, local livelihoods are mainly dependent on fisheries, with large sections of the population relying on fishing and fish mongering. According to the NaFIRRI Catch Assessment Survey (CAS) (2012), Lake Albert is currently the second-most productive lake in Uganda after Lake Victoria, worth UGX 122.5 billion annually (approximately USD 40 million).² The annual value of fish landed in Buliisa District alone is estimated at UGX 17 billion (USD 5.5 million). Fisheries are a key source of employment, income and food security in the district.

Women, both migrants and long-term residents, are not employed as boat crew but are often involved in drying the fish in the sun and small-scale trade, while some non-migrant women are also boat owners. As is the case for men, local women tend to have greater socioeconomic power than their migrant counterparts. The majority of boat owners interviewed during the course of the site visits reported not owning any motorized boats, and even those who did own some outboard engines indicated that most of the boats they owned were non-motorized.

Over 80 per cent of the catch from Lake Albert comprises small species such as *muziri* and *ragoogi*. Nile perch makes up around 6 per cent of the total catch, but accounts for around 34 per cent of the total value of the catch. The NaFIRRI CAS estimates that only 4 per cent of Nile perch caught in Lake Albert are landed in Buliisa District. Therefore, while almost a third of all Ugandan Lake Albert fishing vessels are found in Buliisa District, the gross revenues of the district's fisheries' amount to only 14 per cent of estimated gross revenues for the Ugandan side of the Lake.

Like other major East African lakes, Lake Albert is heavily overfished, and the illegal harvesting of immature fish is widespread; current fishery exploitation rates and management practices are not sustainable. In addition, oil and gas exploration and eventual production in Buliisa District are likely to be accompanied by increased demand for fish and an increased risk of environmental contamination. Oil and gas prospecting has opened formerly impassable roads from the lakeshore to Masindi and Hoima towns, affording access to new markets for the fishing communities (some Buliisa fish is even being marketed as far away as Kampala). While in the short term this improved access to markets is beneficial to local fishing communities, in the long term the lake's fish stocks risk further depletion.

Long-term residents, in particular the native Bagungu, tend to have greater access to the economic resources needed to diversify their livelihood strategies at the family level. Thus, families relying on agriculture and livestock as well as fisheries improve their resilience to stresses related to overfishing through income-generating activities in other sectors. Recent migrants, on the other hand, tend to see their livelihood strategies limited to working as crew on fishing boats.

While the native Bagungu have often now become a minority in fishing villages along the lakeshores, they appear to be over-represented among boat owners.³ Alur fishermen who have settled in Buliisa District over a decade ago are also reported to be among boat owners who employ others to work as crew and fish on their behalf, but fishers who have settled in the district in the past five years rarely have enough capital to own fishing crafts themselves. Longtime residents generally own the means of production (boats and fishing gear) and pay recent migrants around 10 per cent of fish catches each in order to provide labour as crew.

The low wages offered to fishing crew dissuade young people from the local population from working as labourers in the fisheries sector, particularly given the fishery's declining profitability. In addition, manual labour in fisheries has come to be seen as an indicator of low status among the Bagungu, and the more educated members of the younger generation favour employment outside the district in larger towns such as Hoima or Masindi, or even as far as Kampala. On the other hand, recent migrants tend to have received little formal education, and as a result, their employment opportunities outside of the fisheries sector are very limited. Widespread poverty often locks them into a vicious cycle of dependency on the declining fisheries resources of Lake Albert.

Apart from fishing, fish-mongering livelihoods are also widespread. Small market stalls are often operated by women, although not exclusively. Similarly, activities related to the drying of fish on wooden racks near the landing sites are carried out by both men and women. Many women also practice other livelihoods peripheral to artisanal fisheries, such as operating restaurants and bars. While many of the women involved in such livelihoods are family members of fishers, some work independently, and it appears that migrant women and long-term residents are represented in approximately equal numbers.

² According to the MEMD 2013 SEA Report, informal fish trading with the DRC is estimated to account for 53 per cent of regional catches.

³ However, it should be noted that it was difficult to discuss the relationships between ethnicity and socioeconomic power in fishing communities because of the politically sensitive nature of these issues.

Agriculture is mainly practiced in the eastern part of the district, and consists largely of rain-fed, subsistence farming and small-scale cotton plantations. Erratic rainfall, sandy soils and lack of land for further agricultural expansion increasingly hamper these farming activities. Many households rely on more than one livelihood strategy for sustenance and income generation, and it is common for families that own small plots of agricultural land above the escarpment to also own livestock below the escarpment as well as fishing boats along the lakeshore. This high level of livelihood diversification among residents, even within families, likely developed as a coping mechanism for dealing with stresses, in particular climatic ones, which have been intensifying over the past decades. Since none of

the livelihoods available to local communities are fully resilient to the escalating pressures of a rapidly growing population and increasingly unpredictable rains, strategies to diversify income at the family level is likely to have had a stabilizing effect.

Pastoralism is primarily practiced in the grazing areas below the escarpment, and plays an important role in the local economy. Due to their ability to survive on poor forage and limited water, *Ankole* cattle are generally the preferred breed locally. Livestock husbandry in Buliisa District faces serious problems due to repeated outbreaks of bovine pneumonia and increasingly prolonged dry spells.

BOX 1. OIL AND GAS DEVELOPMENT IN BULIISA DISTRICT

During the past 10 years, considerable crude oil deposits have been discovered in the Lake Albert basin, including Buliisa District. According to recent estimates, the multibillion barrel oil field in Lake Albert could prove to be the largest onshore field found in sub-Saharan Africa in more than 20 years. Most of the district falls within an oil exploration block that was licensed to Hardman Resources and Energy Africa (now Tullow Oil) in 2002, while a small part of the district, along the River Nile in the north, falls within an exploration block assigned to Total. Tullow, a multinational oil and gas exploration company, began drilling in Uganda in 2006 and has since drilled over 30 wells around the Lake Albert region, many of which are within Murchison Falls National Park.

As the petroleum resources are located both within and in the vicinity of environmentally sensitive and protected areas, this poses a particular challenge to conservationists, the government, the petroleum industry and Ugandan society. Safeguarding the environment, maintaining community cohesion, and ensuring community health, safety and cultural heritage will be a challenge in light of the rapid development plans. Sharing petroleum reserves across borders with the DRC further complicates matters; agreement is required on shared oil spill responses, fisheries management, the security of oil and gas installations, and border security.

In February 2012, Tullow Oil signed two Production Sharing Agreements (PSAs) with the Government of Uganda relating to the Lake Albert Rift Basin, paving the way for commercial extraction in the near future. Despite this, it is unlikely that the oil industry will offer significant employment opportunities for Buliisa District's local residents, due to the need for highly skilled employees. The future of tourism in the district looks uncertain in a context of future infrastructural developments connected to oil extraction. Even now, the local tourism sector is relatively undeveloped compared to other parts of East Africa. While game drives, boat safaris and sport fishing (primarily Nile perch and tigerfish) are offered as tourist attractions in and around Murchison Falls National Park, in-come-generation opportunities for local communities related to these activities remain limited.



Photo credit: Floris D'Uytsme

4.0 Migration to Buliisa District

Over the past five decades, migration in Buliisa District has been closely linked to a variety of regional geopolitical, historical and economic factors. From the early 1960s onwards, there has been a continuous influx of migrants from the DRC due to the civil strife and political instability in that country. Local residents in Buliisa typically identify 1964 as the year in which the initial influx of Congolese migrants, who mainly settled above the escarpment and set about clearing forested areas to make way for agriculture, reached its peak.

Since then there has been continuous migration into the district, not only from the DRC but also (to a lesser extent) from other parts of Uganda and from other neighbouring countries such as Sudan, Rwanda and Kenya. Migrants have come in search of economic opportunities in fisheries, farming and livestock, and more recently for business opportunities related to oil and gas prospecting. Migrants were traditionally attracted to the district by the availability of unclaimed land for agricultural expansion and grazing, though most land has now been claimed.

The Bagungu are the native inhabitants of Buliisa District. They generally depend on fishing, cattle grazing and farming for their livelihoods, and they have historically migrated within the district. In the early 1980s large groups of Bagungu relocated from the area bordering the lake below the escarpment, which was affected by famine as a result of cassava wilt and increasing episodes of severe drought, to Biiso and Kihungya subcounties above the escarpment, in search of better agricultural land. The current Bagungu landowners in these subcounties acquired their land roughly three decades ago from the original Congolese migrants who, as described above, had settled this previously uninhabited and densely forested area in the mid-1960s. Migrants from the DRC would typically clear forested land, sell it to the Bagungu or to fellow migrants, and move on to clear more land.

The Alur are by far the dominant migrant ethnic group in Buliisa District, having continuously migrated into the area since the 1960s, when they settled primarily in the then-forested areas above the escarpment. At present, they are thought to make up nearly half of Buliisa District's population, although no official statistics on ethnicity are available. For centuries, the Alur have inhabited the regions on both sides of the current border between Uganda and the DRC, and their population is currently

estimated at around 1.5 million people. Historically, the Congolese Alur have been separated from their relatives in northern Uganda by colonial boundaries that did not take ethnicity or family relationships into account, and today they continue to have strong cultural ties linking them to their Ugandan counterparts. The combination of cultural ties and the relative economic and political stability of Uganda compared to the DRC has fuelled cross-border migration into Buliisa Districts and the surrounding areas.

Buliisa has also experienced migration from northern Uganda in the past decades, as people fled insecure areas that had fallen under the control of the Lord's Resistance Army (LRA). As security has returned to these areas in recent years, many people—primarily from the Acholi community—have returned to their homes in the north.

Migration Drivers in Buliisa District

Migration in Buliisa District is primarily driven by economic opportunity. Over the past few decades, the fisheries in the district have become almost fully dependent on migrant workers for low-cost labour. This is the primary pull factor for migrants, in particular those from the DRC, the great majority of whom come from economically marginalized parts of DRC's Province Orientale, where unemployment rates are reported to be even higher than in rural Uganda. Most migrants arriving from the DRC are already involved in fisheries on the Congolese side of Lake Albert, and are therefore familiar with locally effective fishing techniques. Lake Albert is a de facto open-access resource for migrants and local residents alike, and fishing—unlike agriculture—does not require significant initial investments, making it a livelihood strategy well suited to economically marginalized groups such as new migrants.

A number of secondary pull factors also contribute to driving migration into Buliisa District. Joining friends and family who have moved to Buliisa District in the past acts is a significant pull factor for migrants (Uganda Land Alliance, 2011). Family reunification appears to be increasing in recent years, and could be related to the discovery of oil in 2006 fuelling expectations of employment in the district, as well as increases in the market value of fish; breadwinners within families often migrate first and are then joined by their dependents. Recent infrastructure development associated with the oil and gas sector has increased market access for fishers

in Buliisa, something that Congolese fishers do not have on their side of the border. Finally, overfishing has caused the productivity of the Congolese Lake Albert fisheries to decline at a much faster rate than on the Ugandan side of the lake. According to local fishers, the Congolese Lake Albert fishery has all but collapsed.

Political instability and armed conflicts in the DRC have also been factors pushing people to seek refuge in Buliisa District. That said, most of the migrants that have settled in Buliisa District over the past five years have come from the northern part of the DRC's Province Orientale. While economically depressed, this area is currently experiencing relative stability compared to other parts of the eastern DRC, such as Nord Kivu Province.

Migration Profile

The overwhelming majority of recent Congolese migrants have settled along the Lake Albert shore-line; in some fishing villages they now form the majority of the population. Unfortunately, no recent census data are available, and the sensitive nature of any discussion of migration or ethnicity in local politics strongly discourages the local government from registering migrants, non-Ugandans in particular. However, local community members report that in some fishing communities, migrants form over 80 per cent of the population, as well as the great majority of the workforce.

Most recent migrants from the DRC cannot afford to buy or rent land, so they settle on government land within 200 metres of the lakeshore, a zone in which land cannot be privately owned. By contrast, long-term residents tend to own the land they live on under customary land tenure arrangements. In Buliisa the construction of semi-permanent settlements by migrants on this government land appears to be largely tolerated if not officially sanctioned by the local authorities. This laissez faire approach has to date been successful in avoiding conflicts that might arise if migrants were to settle on community lands further from the Lake Albert shoreline; it also appears to be an implicit recognition of the migrants' vital role in providing labour for the district's fisheries sector. The percentage of migrants, particularly those from the DRC, tends to decrease with distance from the lakeshore.

Settling along the lakeshore also allows for migrant workers employed by local boat owners to live next to their place of work, and to protect the boats and fishing gear from theft during the night, particularly

in view of the fact that the boat owners themselves often live several miles inland. Long-term residents commonly settle above the escarpment in order to manage their agricultural plots, while also owning secondary properties below the escarpment to manage their fishing boats and their cattle.

Migrants are not formally registered in Buliisa District, so there are no official figures from which to extrapolate migration trends. Stakeholders report that there has been a steady increase in migration from the DRC since the 1990s and that, while approximately a third of migrant fishermen may eventually leave the district to return to the DRC or to settle elsewhere in Uganda, the majority choose to settle. Birth registrations are rare in rural settings, making it relatively easy for Congolese nationals who wish to settle in Uganda to obtain forged Ugandan documents for a small fee. Ugandan authorities are said to typically turn a blind eye to such practices, partly for electoral purposes in district elections. These factors all contribute to the reported increasing trend in migration.

Based on data from the May 2012 NaFIRRI Frame Survey of Lake Albert, it is possible to make crude quantitative estimates of the numbers of migrants who have come to Buliisa District over the past two decades, which corresponds to the period over which migration began to have a serious impact on the case study area. The data indicate that the number of fishing crafts recorded on the Ugandan section of Lake Albert rose from 1,971 in 1991 to 5,766 in 2007 and finally 6,188 in 2012. 1,919 of these boats were in Buliisa District. While this more than threefold increase in the number of fishing vessels over two decades cannot be attributed to migration alone, the ongoing influx of migrants has certainly played a major role.

Based on Uganda's population growth rate of 3.32 per cent (CIA, 2013), it can be estimated that internal population growth could have been expected to be responsible for a rise in boat numbers from 1,971 in 1991 to around 3,900 in 2012, assuming the percentage of non-migrants employed in fisheries remained constant. However, NaFIRRI data show that 2,285 extra fishing boats were recorded in 2012, for a total of 6,188. Considering that the typical boat crew consists of three members, it appears plausible that around 6,855 migrants could be employed on the 2,285 fishing boats unaccounted for by internal population growth. Since 31 per cent of Lake Albert fishing boats recorded by NaFIRRI in 2012 were from Buliisa District, this would

mean around 2,125 migrants have found employment in Buliisa District fisheries between 1991 and 2012. This, however, is likely to be a significant underestimate, since according to local fishers very few long-term residents are currently employed as boat crew.

If the increase in fishing boats in Buliisa District between 1991 and 2012 were to be attributed to migrant labour, this would mean around 3,320 migrants would have found employment in the district's artisanal fishing sector over the past two decades. All migrant boat crew are reported to be men, but many are joined in Uganda by their spouses and children. Since migrants

from the DRC are known locally for having very large families, it may not be an overestimate to assume that at least 10,000 people of Congolese origin have settled in Buliisa District over the past two decades. Actual numbers may in fact be even higher, since most key informants interviewed during the field visits disputed the validity of the NaFIRRI data, which they considered to be a major underestimate of the actual increase in the Lake Albert fishing fleet since the early 1990s. In addition, the NaFIRRI data on fishing vessels did not take into account fishers employed on beach seines, the great majority of whom are also said to be migrants.



Photo credit: Floris D'Uytene

5.0 Ecosystems and Biodiversity Impacts of Migration

Changes in Lake Albert's species composition over the past decades can be inferred from changes in catches in local fisheries. Between 1969 and 1990, tigerfish, Nile perch and the tilapiine cichlids dominated fish catches on the Ugandan side of Lake Albert. Today over 90 per cent of fish catches consist of much smaller fish species. A drastic change in species composition has taken place over the past two decades in Lake Albert.

In fisheries and in conservation biology, catch per unit effort (CPUE) is an indirect measure of abundance of target species. In the Lake Albert fisheries, the overall CPUE is believed to have been steadily declining, in particular for the larger and most commercially valuable species such as Nile perch and tilapia. However, while declines in CPUE have been reported in a variety of secondary sources, no quantitative data on CPUE trends over the past decade are available (MEMD, 2013; NaFIRRI, 2012b; von Sarnowski, 2004).

Nevertheless, steady declines in the CPUE of Lake Albert fisheries, despite a corresponding increase in the fishing fleet, is a clear sign of fish stock declines in the lake. The key factors behind this decline are thought to be (MEMD, 2013):

- Steadily increasing fisher population in the area.
- Increasing use of illegal fishing gear.
- Weak enforcement of regulations.
- Increasing demand for fish and increased access to markets, both domestically and across the border.
- Open access to fish resources.

Qualitative data indicate that the size of fish caught has steadily decreased across all species over the past five years. According to stakeholders, the size of Nile perch caught in Buliisa District has seen the greatest decline, reflecting the reported trend that juvenile fish are increasingly being targeted as a result of declining fish stocks. Mukene fishing has seen a marked increase in recent years in Buliisa District. This is due mainly to the fact that while in the past mukene were not sought after and were instead left by fishermen as food for larger more valuable species of fish, in the current context of declining fish stocks they are increasingly seen as a valid alternative to the ever more rare and expensive larger species such as tilapia and Nile perch. The observed trends in species composition are the result of over two decades of fishing down the food web. The fisheries in Buliisa District, having depleted the large predatory fish

at the top of the food web, have turned to increasingly smaller species, finally ending up with previously spurned small fish, such as the mukene.

Currently, overfishing poses by far the greatest risk to the Lake Albert aquatic ecosystem. Wide-spread poverty, rapidly growing populations and the lack of viable alternative livelihood strategies drive the unsustainable exploitation of the lake's aquatic resources. While overfishing has been critically affecting the aquatic ecosystem for over a decade, this threat has been intensifying over the past five years. According to stakeholders, breeding grounds are increasingly being targeted by local artisanal fisheries, especially following the increase in the use of illegal monofilament nets used to catch the increasingly economically valuable mukene fish.

Until recently, oil and gas exploration activities in and around the lake have not presented a direct threat to the case study area's aquatic ecosystem. However, the risk of oil spills leading to contamination of the aquatic environment will be greatly increased by the onset of large-scale oil and gas production and movement, likely to commence in 2017–2022 (MEMD, 2013). In this respect, the floodplains of inflowing rivers of Lake Albert are a vital storage zone for runoff from the catchment, but are also a potential conduit for contaminants such as silt, heavy metals and waste products of the extractive industry in general. Water pollution could severely disrupt ecological processes and lead to a further reduction in fish species biodiversity and overall fish stocks, particularly given the current institutional and human capacity gaps in local fisheries management. In the current context, the local co-management structures and local government institutions are unlikely to be able to implement effective, systematic monitoring of the impacts oil development activities or to design sustainable resource management approaches.

In practice, no measures for the protection and management of critical habitats and species are currently being taken by local BMUs, the District Fisheries Office, or any other national or district-level organization. However, local BMU leaders and district government authorities interviewed during the course of the site visits indicated that they understand the importance of protecting and managing fish breeding grounds and other key habitats in order to counter the effects of overfishing on the key commercial fish species.

The key obstacle to protecting the district's breeding grounds and enforcing regulations on fish net mesh size, however, remains the fact that both BMU leaders and local government authorities are unwilling to upset their constituents by restricting their ability to generate income from fishing activities, most of which currently rely on illegal gear and methods. In this respect, it is the elected nature of both local government and BMU Committees that provides a powerful disincentive for the respective leaders to enforce current regulations on Lake Albert resource exploitation or to draft new and more stringent regulations.

Limited employment opportunities outside fisheries and widespread poverty among migrants (but also to a lesser extent among long-term residents) is the key factor driving the increase in the number of fishers. In addition, there is no cap on the number of fishers who can register and license their boats and equipment. Individual fishermen try to fish as much as they can before somebody else takes the fish, the consequence being overfishing. Fishing communities have found it difficult to adapt to the decline in fish catches, and their response has generally been to increase the fishing effort (the number of nets, the number of fishing hours, using new and often illegal methods) as well as the use of smaller meshed nets and fishing in breeding grounds

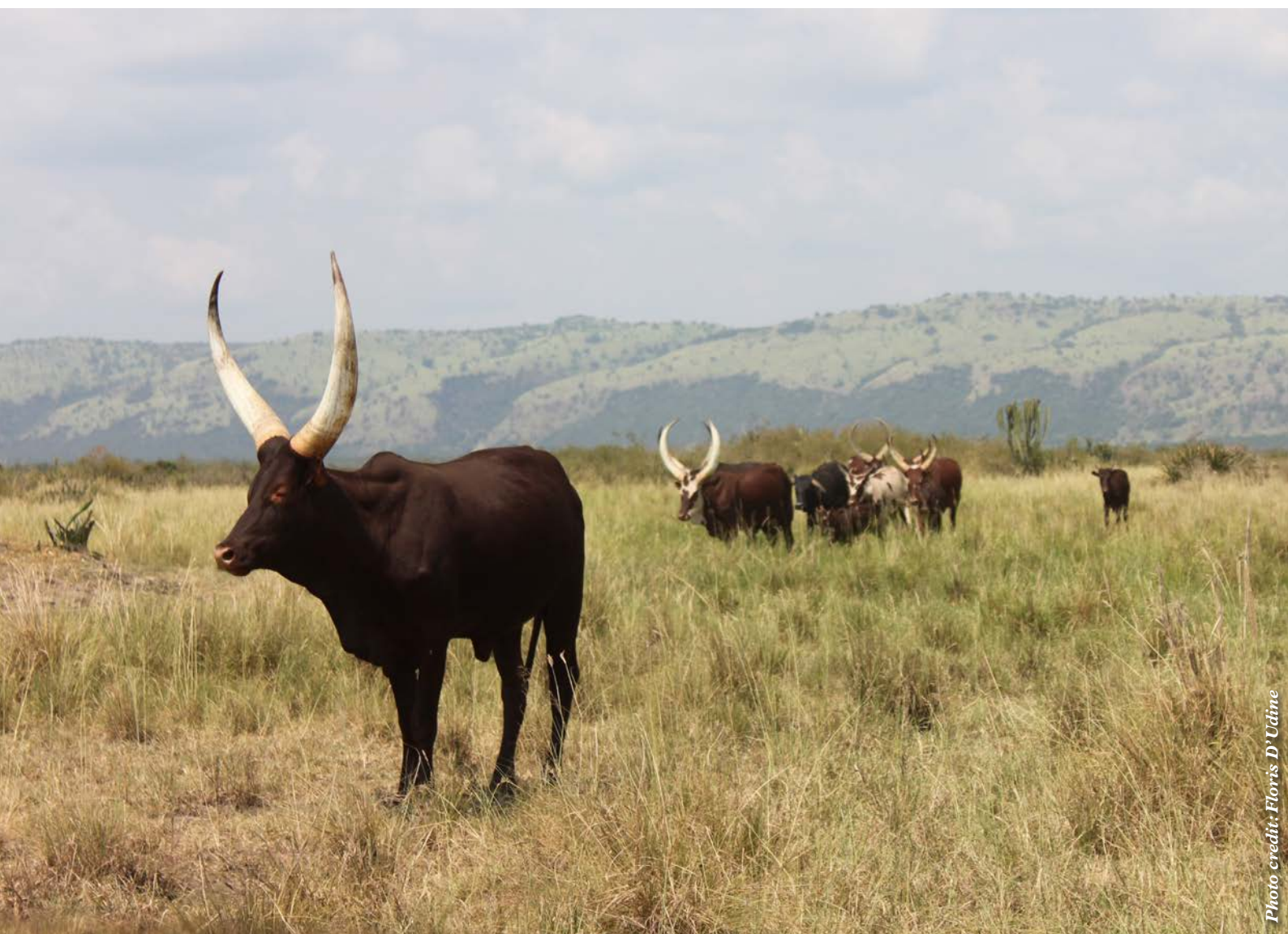


Photo credit: Floris D'Uitine

6.0 Analysis & Recommendations

Migration has played a key role in the degradation of the Lake Albert fishery. It is difficult, without a comparative area on the Lake in which migration did not occur, to gauge the degree to which these changes would have happened in the absence of migration. Nevertheless, research and analysis indicate that the widespread and unregulated migration of Congolese fishers into Buliisa has changed the composition and health of key fish species in Buliisa District. If left unaddressed, continued migration and overfishing risks leading to the collapse of the fishery and the local economy that depends on it.

A stakeholder map was used to analyze the relationships between key Buliisa District fisheries stakeholders (see Figure 2). The map helps to clarify where the power to influence fishery-management decisions lies in Buliisa District, and how relationships between the key stakeholders involved may facilitate or hinder the development of sustainable solutions to the current natural resource management and conservation challenges.

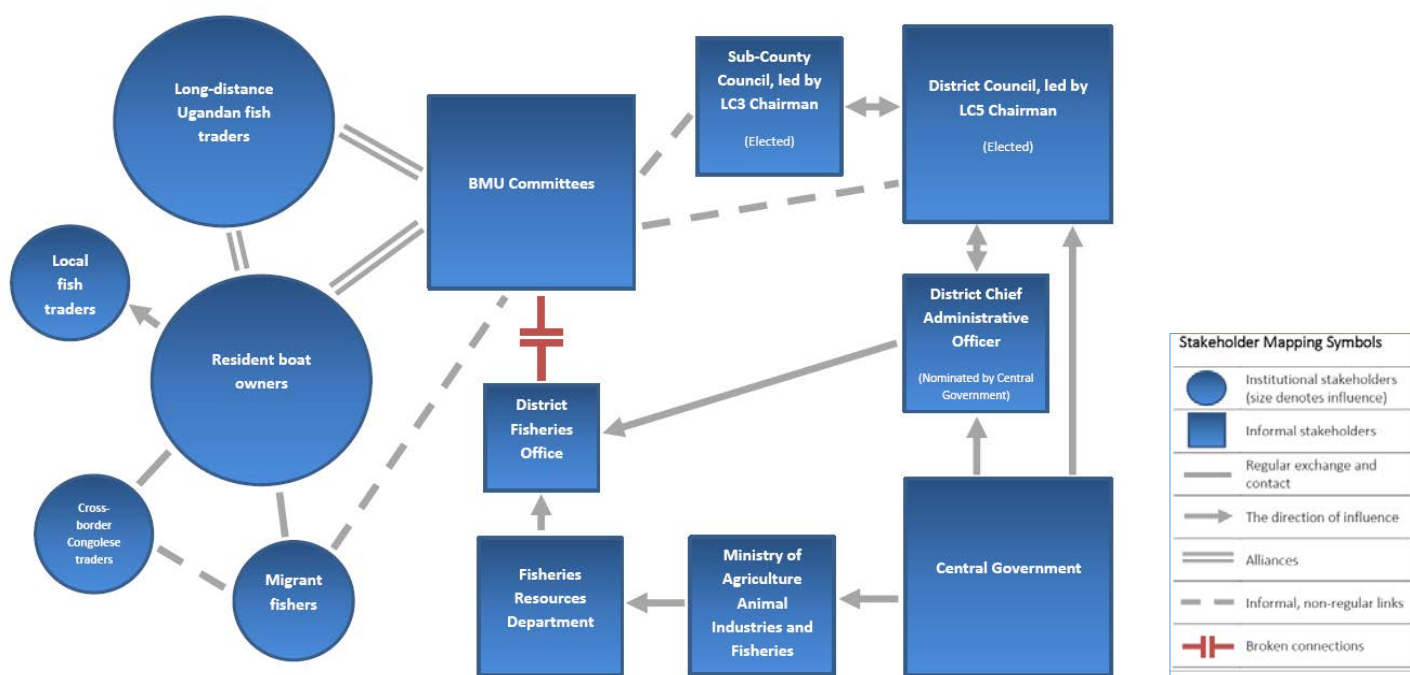


FIGURE 2. BULIISA-LAKE ALBERT CASE STUDY STAKEHOLDER MAP

Building on the information summarized in the stakeholder map, the stakeholder profiling exercise assessed the three main institutional stakeholders (namely the BMUs, the District Fisheries Office and the District Council) in more detail, in order to better understand their divergent perspectives, and in particular the reasons behind the breakdown in collaboration and communication between the BMUs and the District Fisheries Office (see Table 1). The following five key aspects of each of these stakeholders were examined:

- **Positions:** Publicly presented demands and standpoints.
- **Interests:** What each stakeholder ideally would like to achieve from engagement with other stakeholders.
- **Needs:** Essential requirement for the subsistence and satisfaction of each stakeholder.
- **Capacities:** Resources (physical, financial, human, technical and social) that each stakeholder can access.
- **Capacity gaps:** Resources (physical, financial, human, technical and social) that each stakeholder would require to address their needs, promote their interests or articulate their positions but cannot currently access.

TABLE 1. BULIISA-LAKE ALBERT CASE STUDY STAKEHOLDER PROFILES

	BMUS	DISTRICT FISHERIES OFFICE	DISTRICT COUNCIL
Positions	<ul style="list-style-type: none"> Fishers' livelihoods must be improved. Declining profitability of fishery must be addressed. 	<ul style="list-style-type: none"> The fisheries sector must be promoted and enhanced. Fisheries Resources Department regulations must be enforced. 	<ul style="list-style-type: none"> Poverty among fishing communities must be reduced. Continued employment for those depending on fisheries is a priority.
Interests	<ul style="list-style-type: none"> Relaxation of current restrictions on fishing equipment. Outside investments in Lake Albert fisheries. Introduction of fish farming. 	<ul style="list-style-type: none"> Regular collection of data on fish catches. Enforcement of existing national fisheries regulations. Development of local regulations in partnership with District Council to ensure sustainability of Lake Albert fisheries. 	<ul style="list-style-type: none"> Enhancing employment in the local fisheries sector. Enhancing profitability of the local fisheries sector. Social cohesion among different ethnic groups involved in fisheries sector.
Needs	<ul style="list-style-type: none"> Long-term sustainability of Lake Albert fisheries. Preservation of fisheries-related livelihoods. 	<ul style="list-style-type: none"> Long-term sustainability of Lake Albert fisheries. Compliance with Fisheries Resources Department regulations. 	<ul style="list-style-type: none"> Sustainable employment opportunities for constituents. Peaceful relationships among different ethnic and socioeconomic groups in the district.
Capacities	<ul style="list-style-type: none"> Artisanal fishing fleet and fishing know-how. Informal knowledge of key fishing grounds and ecologically sensitive habitats . 	<ul style="list-style-type: none"> Knowledge of Fisheries Resources Department regulations. 	<ul style="list-style-type: none"> Legal mandate to pass ordinances and bylaws regulating local fisheries.
Capacity gaps	<ul style="list-style-type: none"> Insufficient capacity/incentives to record fish catches and analyse trends. Insufficient capacity/ incentives to develop BMU-specific management plans. Lack of technical expertise in sustainable fisheries management. Lack of patrol boats and/or other tools to enforce existing regulations. 	<ul style="list-style-type: none"> Limited human resources. Limited resources for equipment and transport. Limited data on the state of local fisheries and the trends in fish catches. 	<ul style="list-style-type: none"> Lack of technical expertise to pass ordinances and bylaws regulating local fisheries.

The stakeholder map and stakeholder profiles indicate that strong informal ties and shared concerns regarding the short term viability of the livelihoods of those dependent on the fisheries sector exist between BMU leaders and the elected District Council, while the District Fisheries Office has virtually no allies at the local level to collaborate with on developing and enforcing more sustainable fisheries regulations.

It is difficult to establish precisely to what extent migration has affected the functioning of the Buliisa District Fisheries Office, since by the time the district itself was established in 2006, large-scale cross-border migration had already been underway for more than a decade. In all likelihood, the capacity gaps identified in the District Fisheries Office's stakeholder profile have been exacerbated by the ongoing influx of new migrants seeking employment in fisheries, and the already-complex task of managing local fisheries in the context of limited funds, declining fish stocks and escalating resource overexploitation has been made all the more difficult by the migratory process.

The BMU co-management system was introduced in the Buliisa District in a context already largely defined by migration. However, since ethnicity plays a major role in BMU Committee elections, causing friction between mainly non-migrant BMU leaders or boat

owners and migrant boat crew, the large-scale migration from the DRC may be one of the main causes of BMU ineffectiveness in the district. In this respect, tensions between the BMU leadership and the less economically em-powered community members dependent on fisheries are likely to be caused by cultural differences as well as socioeconomic disparity. This is confirmed by the fact that the BMU co-management model appears to have been more successful in other Ugandan lakes where recent migration has not had such a profound impact on the fisheries sector (Odongkara, 2009).

A conceptual model emerges to describe the migratory process in Buliisa District. A decline in fish stocks as a result of the fishery's overexploitation results in reduced economic returns per unit of effort, which, in the absence of viable alternative livelihood strategies, pushes fishers to increase fishing effort in a bid to maintain their income. This, however, requires local boat owners to keep the costs of fishing activities to a minimum, and the use of low-cost migrant labour has become the key coping strategy on which the artisanal fisheries sector relies (see Figure 3).

The causal mechanisms through which reduced economic returns per unit of effort are thought to lead to an increased use of migrant labour were analyzed using quantitative data collected during the field visits.

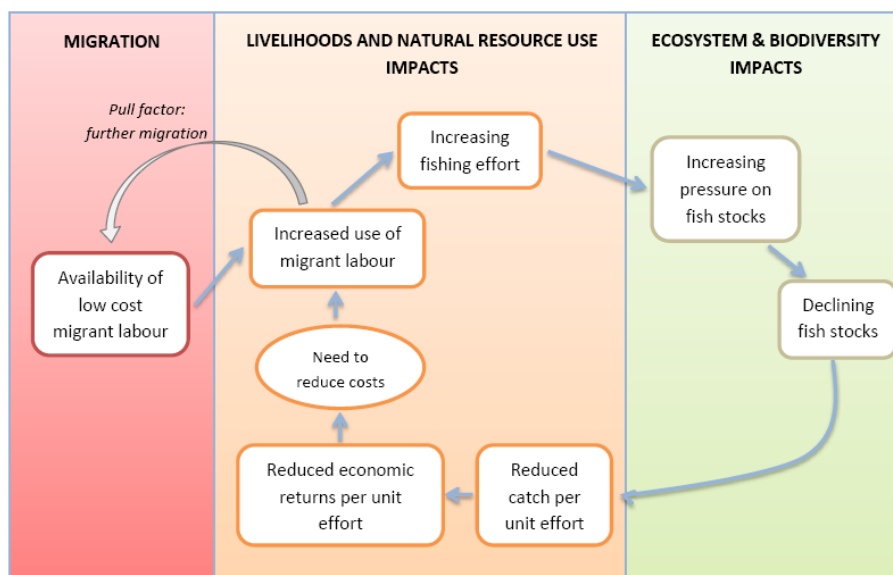


FIGURE 3. CONCEPTUAL MODEL OF MIGRATION IN BULIISA DISTRICT

The average yearly revenue per fishing boat is thought to have declined by approximately 30 per cent over the past five years, with an estimated 7 per cent drop between 2012 and 2013. The conceptual model assumes that as the profit margins in fishing decrease as a result of declining CPUE, boat owners seek to minimize all costs, including labour costs. This corresponds with the prevailing narrative at the landing sites: that the primary factor driving migrant dominance among fishing boat crew in Buliisa District is poverty and a lack of economic opportunities among Congolese migrants. This drives them to work for lower wages than local Ugandan nationals. Data collected in the field confirms this: the average boat crew member makes approximately UGX 822,500 (USD 265) per annum,⁴ compared to the Ugandan GDP per capita of USD 657 per annum (World Bank Indicators, 2015).

The yearly income per boat for Buliisa District boat owners (as calculated by subtracting all maintenance and crew costs from revenue estimates provided by key informants during the site visits) is approximately UGX 5,125,000 (USD 1,650), which is significantly higher than the Ugandan per capita GDP. While this excludes registration fees, taxes and other costs (which to add up to no more USD 50 per year but vary greatly, depending on the degree to which local BMUs enforce regulations), most local boat-owning families own multiple boats. In addition, while these figures are thought to be broadly representative, there is significant variation in reported revenue per boat.

The widespread availability of low-cost migrant labour is instrumental in maintaining unsustainable levels of fishery exploitation. Stakeholders in the district believe that it is possible that in the absence of low-cost migrant

labour, less fishing would be occurring in the district; maintaining current levels without migrant workers would be too expensive.

Some key themes emerged during the research:

- **Relevance of traditional and contemporary resource management systems:** Traditional fisheries management systems have been abandoned in Buliisa District, and are no longer relevant. Fisheries co-management systems were intended to replace the traditional systems, but they are not functioning as intended. While the failure of co-management as the key strategy for managing the fishery cannot be attributed exclusively to migration, ethnic and socioeconomic divisions between migrants and local communities appear to have exacerbated the shortcomings of the BMU system.
- **The Malthusian overfishing model and Buliisa District fisheries:** Malthusian overfishing links a (small-scale) fishery with a large adjacent sector (generally agriculture) generating surplus labour, which the fisheries resource system cannot absorb without damage (Pauly, 1990). While the model was developed for marine artisanal fisheries in tropical areas, it appears to be broadly relevant to Buliisa District, although in this case it is not just the local agricultural sector but rather the proximity with the DRC and the influx of migrants across Lake Albert that has generated surplus labour over the past decades.

According to the Malthusian model, small-scale fishers in developing countries are usually poor and lack alternative employment opportunities; once they start to fish, they are forced to continue,

⁴ This amounts to an average of USD 0.89 per day, while the World Bank's international poverty line is set at USD 1.25 a day.

even if the resource declines precipitously. Over time, the number of these fishers usually increases, both because of internal recruitment and through new entrants (i.e., new fishers recruited from other regions or other sectors, such as landless farmers for whom fishing becomes an occupation of last resort). Malthusian overfishing occurs when these poor fishers, lacking the usual alternative of “traditional” fishers (e.g., a small plot of land or seasonal work on farms or pastoralism), are faced with declining catches, and respond by increasing their efforts. This induces resource destruction in their effort to maintain their incomes. This may involve:

- 1) Use of fishing techniques, equipment and mesh not sanctioned by government.
- 2) Use of equipment not sanctioned by the fisher community and/or catching of fish “reserved” for a certain segment of the community.
- 3) Use of equipment that destroy the resource base.
- 4) Use of destructive equipment such as dynamite and fish poisons that endanger the fishers themselves.

The following indicators point to a Malthusian overfishing scenario. Data collected during the case study site visits suggests that all of these issues are occurring in Buliisa District.

- o Stagnating (or declining) overall catches.
 - o An increasing number of fishers, leading to decreasing catch and hence income per fisher.
 - o Evidence of biological and ecological overfishing.
 - o A breakdown of traditional management schemes.
 - o Non-enforcement of “modern” management regulations.
- **Porous nature of the Uganda-DRC border:** Migration has shaped Buliisa District over the past five decades, both in terms of ethnic composition and of the local economy. Cultural and ethnic ties between Alur communities on either side of the border have facilitated migration, particularly in view of the DRC’s history of political upheavals and armed conflicts. However, it is also the extremely porous nature of the border itself, particularly in the neighbouring Nebbi District, which has enabled migration to happen on such a large scale. Much of the border areas in northern Uganda are characterized by rough and difficult-to-patrol terrain, allowing migrants to cross over undetected.

Additionally, in rural settings few people are in possession of birth certificates or identification papers, further enabling the unrestricted movement of people. Immigration laws are often not enforced in this part of Uganda due to the limited resources available to law enforcement and the recognition that migrant and resident communities are economically interdependent. In addition, since many migrants are said to vote in local elections, local leaders are reluctant to alienate these potential voters by identifying them as non-Ugandans.

The stakeholder map, stakeholder profiles, and Buliisa-Lake Albert case study conceptual model serve as a starting point for the identification of potential intervention strategies aimed at addressing the immediate impacts of migration on the case study area’s livelihoods and natural resource use patterns, as well as the ultimate impacts on key ecosystems and biodiversity. There are a number of significant challenges to resolving the current trends related to overfishing in Buliisa District, and all of the proposed intervention strategies are based on the assumption that the political will exists to move toward sustainable resource management at both the local and national level.

Intervention Strategy 1: Curbing the expansion of migrant settlements in Buliisa District

Migration into the case study area is extensive and largely uncontrolled as a result of the porous border and the geographic location of Buliisa District next to Lake Albert. In addition, due to shared languages, the reported proliferation of counterfeit identification and the dearth of birth registrations in rural settings, it often proves challenging for authorities to distinguish Ugandan citizens from their Congolese neighbours.



Photo credit: Floris D’Uaine

Intervention Strategy 1 involves tackling the root cause of Buliisa's migration-related issues—the flow of migrants themselves. This would require stepping up border patrols, and establishing a system whereby Ugandan immigration officers register all incoming migrants. For this strategy to be effective, the issue of counterfeit documents would need to be addressed at the national level, and the systems used for registering Ugandan nationals in rural areas such as Buliisa and Nebbi Districts would need to be radically overhauled. In addition, the issue of migrants being allowed to settle on public land on the shores of Lake Albert with the tacit acceptance of the Ugandan authorities would need to be addressed. The rapid expansion of such migrant communities on public land poses a number of challenges in terms of sanitation, services provision and public safety, besides the longer-term impacts on natural resources and livelihoods.

Curbing the rate at which Buliisa fishing villages are expanding would be key to the sustainable management of resource demands of rapidly growing populations over the coming years. In this respect, Intervention Strategy 1 would require that the numbers of new migrants allowed to settle each year in these villages be carefully managed and regulated through specific local legislation (as per the Local Government Act of 2000), allowing for the district's infrastructure and service provision to catch up with the demands of all residents. If the expansion of settlements along the lake is not carefully planned and managed, the resulting population increase is likely to further exacerbate overfishing.

The implementation of Intervention Strategy 1 requires major political will and policy reform at both the national and district levels. Local officials are concerned—according to key stakeholders—that conflicts could emerge between migrant and non-migrant communities if regulations restricting the settlement of new migrants were to be enforced, or if migrants were to settle on communal grazing lands further inland. As such, investments will have to be made in strengthening local capacities to prevent, mediate and resolve conflict, and the enforcement of any new regulations should be done in a fair, equitable and transparent way. At the same time, local elections are reported to take place in a context in which many voters are not in the possession of identification papers or even birth certificates. Local political leaders pursuing policies restricting the numbers of new migrants allowed to settle in the district would come under fire for preventing cross-border family reunification, and their intentions would risk being viewed as xenophobic rather than geared toward ensuring fishing communities' long-term interests.

These challenges highlight the need for a comprehensive reform of the Ugandan electoral system at the district level, in the absence of which it would remain problematic for local government to enforce national regulations on immigration, and even more so to develop local regulations restricting the settlement of migrants and their access to natural resources. Preventing undocumented migrants from voting in Ugandan elections, though difficult in the current political climate, is necessary in order to allow local authorities to make management decisions in the long-term interest of the fishery-based livelihoods of Buliisa District's residents and the conservation of the district's natural resources.

Intervention Strategy 2: Enhancing district-level fishery-management regulations

The Fish (Beach Management) Rules (2003) empower BMUs to develop fisheries resource management plans in partnership with the District Fisheries Office. In addition, the Local Governments Act empowers district councils to write ordinances, while urban authorities, subcounties, divisions or even village councils can make bylaws (as long as these are consistent with all district-level ordinances). Intervention Strategy 2 targets the opportunity to bring about the sustainable management of Buliisa District's artisanal fisheries through a combination of BMU-level fisheries management plans and specific ordinances regulating local fisheries at the district level, supported by specific bylaws at the subcounty level where necessary.

This will require that the significant capacity gaps within the District government be addressed before local legislation on fisheries management is developed, and the technical collaboration between the District Fisheries Office and local BMUs would have to be strengthened. Authorities, both at the BMU and local government levels, will have to find the political will to enforce existing national-level fisheries regulations. There are significant informal ties between BMU leaders and District Council members, and both sets of stakeholders share a number of key concerns related to the significant loss of income for many of their constituents if existing fishery regulations were to be enforced. However the complete collapse of the fishery, which is very possible given current, unsustainable fishing rates, would present these local authorities with a much greater problem. Before it becomes a reality, a major political shift will have to take place that allows for the drafting of specific regulations to curb the proliferation of illegal fishing equipment and unsustainable fishing practices.

Intervention Strategy 3: Livelihood diversification

Lake Albert fish stocks are declining rapidly, with adverse repercussions for the viability of local fisheries. Livelihood diversification is already commonplace among the native Bagungu community, who generally own land and possess the economic means to engage in farming and pastoralism as well as fishing. Promoting livelihood diversification among the migrant fishers from the DRC, however, would require establishing mechanisms through which they could access natural resources other than Lake Albert. This may prove problematic in terms of access to farmland, which is already privately owned in the district, and also for the communal grazing areas; conflict has already erupted between Bagungu cattle owners and nomadic pastoralists from other parts of the country.

An income-generation strategy which may be more feasible, and which was suggested by a number of key stakeholders during the research, is fish farming in Lake Albert. Breeding commercial fish, in particular larger and more economically valuable species such as Nile perch, in fish farms could provide a stable source of income to fishers without further depleting the existing fish stocks. Fish farming is already being tested in other Ugandan lakes, and BMU leaders believe such projects could work locally. If adopted in Buliisa, fish farming activities should be designed in a conflict-sensitive way to ensure that benefits are not captured by the elites, that benefits are equitably and transparently shared, and that conflicts do not emerge among stakeholders.

Intervention Strategy 4: Improved protection of fish breeding grounds

Finally, there is a need to strengthen the protection of the key natural resources themselves—in particular the fish breeding grounds that are crucial to the long-term viability of the Lake Albert fisheries. These fish breeding grounds are not actively protected, even though local fishers, BMU leaders and local government officials are aware of their importance. Despite knowing that by targeting immature fish they are undermining the viability of their own livelihood strategies, many fishers in Buliisa District have no choice but to fish in breeding areas due to the depletion of more commercially valuable large fish.

Significant capacity gaps among the BMUs themselves were identified during the stakeholder profiling exercise,

and these should be addressed. This will include increasing the capacity and incentives of the BMUs to record fish catches and analyze trends, in order to have a better idea of how the fishery is faring over time. Capacities should also be strengthened to develop management plans for each of the BMUs, plans that are responsive to the local context. Improved technical expertise in sustainable fisheries management is also required for BMU staff, as is the equipment that they require to fulfill their enforcement mandate, including boats and petrol.

Overfishing could be partially addressed by more clearly marking and monitoring breeding and spawning sites, and enforcing existing regulations prohibiting fishing activities in these sensitive habitats. This may require developing new, more specific regulations, as per the Local Governments Act, as well as the strengthening of monitoring and enforcement mechanisms. While the enforcement of fisheries regulations in Buliisa is currently left to the local BMUs, stronger oversight from the Department of Fisheries Resources is essential. A more sustainable long-term solution may be for fish breeding grounds and other sensitive Lake Albert habitats to be formally protected and directly managed by the Department of Fisheries Resources. Alternately, multistakeholder, community-led monitoring committees could be established for each landing site that would police ecologically sensitive sites on the lake; such committees have been successfully established on neighbouring Lake Edward. Technical input, support and oversight from other organizations, such as the Uganda Wildlife Authority (UWA) or outside conservation organizations like the Wildlife Conservation Society, which are currently not directly involved in the management of Lake Albert resources, could be beneficial for decision making and law enforcement in the politically charged context of fisheries resources exploitation in the district.

The Lake Albert fishery in Buliisa is in trouble. Overfishing, a response to increased demand for fish made possible in part by unregulated migration, threatens the ecosystem with collapse. Unfortunately, there is a lack of political will among local authorities to address these threats to the ecosystem; for them, maintaining the status quo is in their economic and political interest, regardless of the long-term consequences. However the well-being of the district largely depends on action: a failure to address these challenges could result in the loss of livelihoods, both for local residents and migrants.

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Annex 1: Research Methodology

Desk-based research was used to compile and synthesize existing data from secondary sources into a concise summary of critical background information, baseline data and trends. The key types of secondary data that were analyzed, both quantitative and qualitative included published statistics, published literature, and media coverage.

Desk-based research was carried out to achieve a general understanding of the critical issues, key events and challenges, and to use this information to guide and direct subsequent research by facilitating the formulation of additional, more in-depth questions to be addressed at a later stage. Follow-up research enabled the case study team to fill in emergent information gaps in data previously collected, identify the core reasons for differing perspectives among stakeholders, validate findings and check the authenticity of claims made by key informants or other experts.

An initial fact-finding case study inception visit to the study area was carried out in December 2012. The aim of this visit was to assess the feasibility of the case study. Subsequently, over a three-day period in May 2013, the case study team's in-country member (WCS Uganda) carried out a preliminary site visit in order to establish contact with local government and other key stakeholders, to raise awareness about the case study, and to gain their support and buy-in ahead of the data collection site visits.

The case study field data collection component comprised both focused interviews with key informants, carried out during the main site visit in June 2013, and short surveys carried out by WCS among key fishing communities along Lake Albert during the follow-up site visit over a three-day period in September 2013. Research questions focused on understanding the nature of the migration, understanding how the migration has altered natural resource use and livelihoods, and finally, understanding the impacts of the migration on the Lake Albert ecosystem.

Focused interviews: During the main site visit, focused interviews were conducted with key community members selected for their technical knowledge, local government representatives, community members, and other key stakeholders involved in natural resource use or protection. This method allowed the case study team to collect primarily qualitative data, in a context allowing the respondents the time and scope to talk about their

experience and views on a particular aspect identified using the analytical framework and research questions.

Surveys: During the follow-up site visit, a simple survey was administered to members of eight fishing communities in order to gather critical information (primarily quantitative) on the role of migrants in fishery-related livelihoods. Due to the limited time and resources available, purposive sampling was used to ensure the sample of participants was as far as possible reflective of different population groups involved in fisheries in Buliisa District.

Analytical tools: A migration timeline tool was used to document the case study area's local history of migration, identifying key events and phases in the migratory process and displaying them graphically so as to clearly summarize critical events, emphasizing the temporal dimension as a potential key to understanding their causal relationships. Stakeholder mapping was then used to examine the relationships between the key stakeholders, clarifying where power lies and identifying where synergies and collaboration between stakeholders are present and where relationships are strained. Building on the stakeholder map, stakeholder profiles were prepared to better understand stakeholder perspectives and actions, and to illustrate what stakeholders are trying to achieve, their aspirations, their actual interests and basic needs, as well as their capacities and capacity gaps.



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